

Remarks/Arguments:

Applicants' disclosure is directed to a laser apparatus. The laser apparatus includes a laser light source and a bulk type optical wavelength converter. A single mode fiber connects the laser light source and the optical wavelength converter such that the single mode fiber conveys laser light from the laser light source to the optical wavelength converter. The fiber is configured to prevent a variation in temperature of the optical wavelength conversion element.

Claims 81, 85-86 and 90 stand rejected under 35 U.S.C. § 103(a) as being anticipated by Matsuura et al. (U.S. Patent Number 5,363,117) in view of Byer et al. (U.S. Patent Number 5,036,220) and further in view of Gupta (U.S. Patent Number 5,682,398). It is respectfully submitted, however, that the claims are now patentable over the cited art for the reasons set forth below.

Matsuura discloses, in Fig. 1, a laser 30, a condenser lens 4 disposed between the laser 30 and a liquid crystal cell 7, and a projection lens 12 disposed between the laser 30 and a screen 9.

Byer et al disclose, in Fig. 1, an optical fiber 17 disposed between a laser 12 and a nonlinear optical generator 11. According to Byer et al., optical fiber 17 is used as a means to convey the output of laser 12 (col. 4, lines 29-39).

Gupta discloses locking the wavelength of a semiconductor laser (see col. 2, lines 48-59). Further, Gupta discloses, in Fig. 1, an optical fiber 20 disposed between a frequency doubled crystal 22 and a laser 12. According to Gupta, the optical fiber 20 is used to convey the output of the laser 12 so as to reduce, as much as possible, the variation in the frequency of the output of the laser 12 (See column 3, lines 4-10).

Applicants' invention, as recited by claim 81, includes features which are neither disclosed nor suggested by the art of record, namely:

... a bulk type optical wavelength conversion element in which periodic domain inverted structures are formed ...

... a single mode fiber for conveying laser light from the semiconductor laser to the optical wavelength conversion element ...

... the single mode fiber is configured to prevent a variation in temperature of the optical wavelength conversion element caused by a heat generated from the semiconductor laser ... (Emphasis Added).

This feature is found in the originally filed application at page 52, lines 27-28 and page 54, lines 14-15 (bulk type optical wavelength conversion element); and page 55, lines 15-19 and page 57, lines 14-16 (fiber configured to prevent a variation in temperature of the optical wavelength conversion element). No new matter has been added.

With regard to Matsuura, Examiner admits that Matsuura does not disclose or suggest an optical wavelength conversion element. Further, Matsuura does not disclose or suggest a single mode fiber for conveying laser light from the semiconductor laser to the optical wavelength conversion element.

With regard to Byer, Byer is silent regarding a bulk type optical wavelength conversion element. Further, while Byer does disclose an optical fiber 17 disposed between a laser 12 and a nonlinear optical generator 11, Byer does not disclose or suggest that the optical fiber 17 is configured to prevent a variation in temperature of the nonlinear optical generator 11.

With regard to Gupta, Gupta does not disclose or suggest a bulk type optical wavelength conversion element. Further, Gupta does not disclose that optical fiber

Application No.: 10/712,126
Amendment Dated: December 11, 2006
Reply to Office Action of: September 12, 2006

SNK-3750US4

20 is constructed to prevent the variation in temperature of the optical wavelength conversion element.

This is different because Applicant discloses use of a bulk type optical wavelength conversion element as well as a single mode fiber configured to prevent a variation in temperature of the optical wavelength conversion element. Neither Matsuura, Byer, Gupta, nor any combination thereof disclose these features.

It is because Applicants' include the feature of ...a bulk type optical wavelength conversion element in which periodic domain inverted structures are formed...a single mode fiber for conveying laser light from the semiconductor laser to the optical wavelength conversion element...the single mode fiber is configured to prevent a variation in temperature of the optical wavelength conversion element caused by a heat generated from the semiconductor laser, that the following advantages are achieved. Namely, it prevents variation in temperature of the optical wavelength conversion element.

Accordingly, for the reasons set forth above, claim 81 is patentable over the art of record.

Claims 85, 86 and 90 include all the features of claim 81 from which they depend. Thus, claims 85, 86 and 90 are also patentable over the art of record for the reasons set forth above.

Claims 91-95 are newly added and are respectively supported by claim 81. No new matter has been added.

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SNK-3750US4

In view of the amendments and arguments set forth above, the above-identified application is in condition for allowance which action is respectfully requested.

Respectfully submitted,


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